# Claims

1. A method for migration between a permanent connection and a switched connection in a transmission network, comprising the steps of:

a) the ingress node of the current connection forwarding the message of connection migrating request node by node in the direction of traffic signal transmission of the current connection starting from the ingress node until the egress node of the current connection, after receiving a message of connection migrating request; and

b) making migration between a permanent connection and a switched connection node by node after receiving the message of migrating request.

2. A method according to Claim 1, wherein said step of forwarding the message of connection migrating request and the process of connection migration in this method is performed by the control plane of the node and the message of connection migrating request is transferred via the control links.

3. A method according to Claim 2, wherein a migration from a permanent connection to a switched connection in said migration process between a permanent connection and a switched connection comprises creating a state of switched connection on the control plane of the node and handing over the cross-connections of the permanent connection at this node to the control plane.

4. A method according to Claim 2, wherein a migration from a switched connection to a permanent connection in said migration process between a permanent connection and a switched connection comprises deleting the state of the current switched connection from the control plane of the node and handing over the cross-connections of the switched connection at this node to the management plane.

5. A method according to Claim 2, wherein said control plane is based on TCP/IP protocol, and said migration between a permanent connection and a switched connection is implemented by using the RSVP-TE signaling protocol or the CR-LDP signaling protocol.

6. A method according to Claim 1, wherein said migration between a permanent connection and a switched connection node by node in Step b) of the method

comprises: making migration between a permanent connection and a switched connection node by node starting from the egress node until the ingress node in the reversed direction of the forwarding path of the message of connection migrating request after the message of connection migrating request has reached the egress node.

7. A method according to Claim 6, further comprising: each said node, after completing the migration, sending a message of migration completing notification to the next node required to make migration until the ingress node, which sends said message of migration completing notification to the initiator of the connection migrating request.

8. A method according to Claim 1, wherein said migration between a permanent connection and a switched connection node by node in Step b) of the method comprises: each node making a migration between a permanent connection and a switched connection right after a message of connection migrating request is received.

9. A method according to Claim 8, further comprising: after all said nodes complete the migration, forwarding the message of migration completing notification node by node starting from the egress node till the ingress node in the reversed direction of the forwarding path of said message of request, and the ingress node sending said message of migration completing notification to the initiator of the connection migrating request.

10. A method according to Claim 7, wherein said message of migration completing notification contains the routing information of the entire connecting link of the migration.

11. A method according to Claim 7, wherein said message of migration completing notification contains the identifier of the current switched connection if said migration between a permanent connection and a switched connection is a migration from a switched connection to a permanent connection.

12. A method according to Claim 1, wherein said message of connection migrating request received by the ingress node comprises: the ingress node identifier and incoming port information or the ingress node identifier and outgoing port information of the ingress node of the connection currently requested to be migrated,

and each node adds its own outgoing port information to the message of connection migrating request before forwarding the message.

13. A method according to Claim 12, wherein, in the process of forwarding said message of connection migrating request by each node, the outgoing port information from the present node to the next node is added to the message of connection migrating request if the message includes incoming port information; and the incoming port information from the present node to the next node is added to the message of connection migrating request if the message includes outgoing port information.

14. A method according to Claim 12, wherein said incoming port information comprises the identifier of the incoming port, or the identifier of the incoming channel, or the combination thereof; and said outgoing port information comprises the identifier of the outgoing port, or the identifier of the outgoing channel, or the combination thereof.

15. A method according to Claim 12, wherein said own outgoing port information of the node is obtained by inquiring the cross-connection information stored in the node itself based on the incoming port information of the current node.

16. A method according to Claim 12, further comprising before said ingress node makes a migration between a permanent connection and a switched connection: deciding whether the ingress node identifier and incoming port information or the ingress node identifier and outgoing port information contained in the received message of connection migrating request is correct or not, if yes, making the migration, otherwise returning a message of failure and ending this process.

17. A method according to Claim 12, wherein the message of connection migrating request received by said ingress node further comprises: the egress node identifier, or the egress node identifier and outgoing port information at the egress node of the current connection requested to be migrated.

18. A method according to Claim 17, further comprising before said egress node makes a migration between a permanent connection and a switched connection: deciding whether the egress node identifier or the egress node identifier and outgoing

port information contained in the received message of connection migrating request is correct or not, if yes, creating or deleting a switched connection at the node, otherwise returning a message of failure and ending this process.

19. A method according to Claim 1, wherein, if said migration between a permanent connection and a switched connection is a migration from a switched connection to a permanent connection, the message of connection migrating request received by said ingress node comprises: the identifier of the current switched connection.

20. A method according to Claim 1, wherein said connection is a uni-directional connection or a bi-directional connection.

21. A method according to Claim 1, wherein said switched connection in the method is a soft permanent connection initiated by network management system or a switched connection initiated by a client device or a proxy thereof.

22. A method according to Claim 1, wherein said transmission network is a Synchronous Digital Hierarchy, or a synchronous optical network, or a wavelength switched network, or an Optical Transport Network (OTN).